Answers for 4.1

For use with pages 209–212

4.1 Skill Practice

1. 5; −3

2. No; the point could lie in either Quadrant II or Quadrant IV.

3. (3, −2) **4.** (0, −1)

5. (4, 4) **6.** (−4, 3)

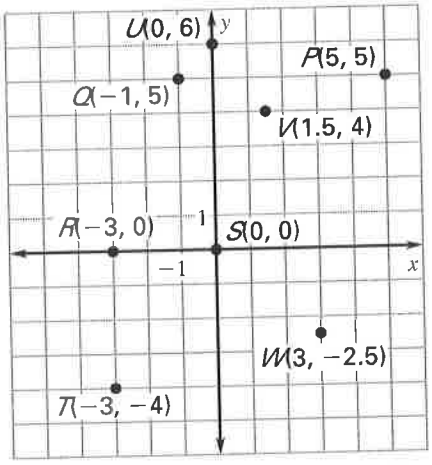
7. (4, −1) **8.** (3, 0)

9. (−5, 4) **10.** (−3, −2)

11. (−4, −1) **12.** (−1, 2)

13. B

14–21.



14. Quadrant I **15.** Quadrant II

16. x-axis **17.** origin

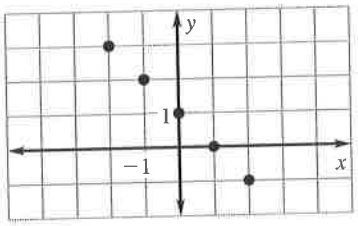
18. Quadrant III **19.** y-axis

20. Quadrant I **21.** Quadrant IV

22. The description of the location is backwards, the point is 6 units to the right of the origin and 6 units down.

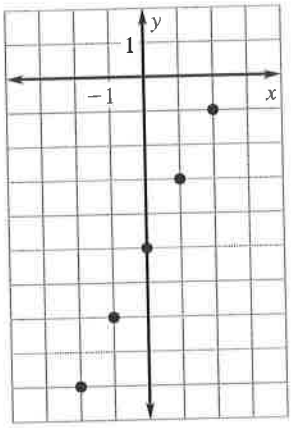
23. B

24.



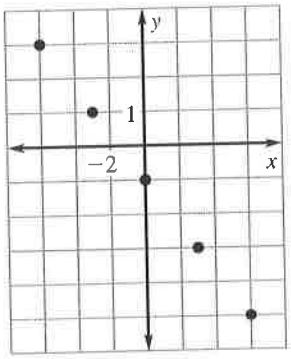
−1, 0, 1, 2, 3

25.

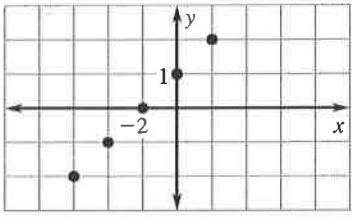


−9, −7, −5, −3, −1

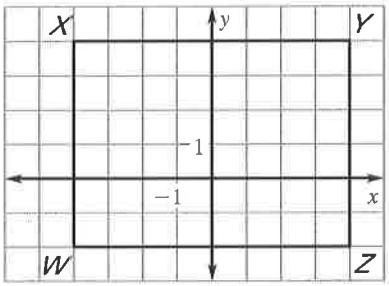
26.



−5, −3, −1, 1, 3

27. 

$-2, -1, 0, 1, 2$

28. 

rectangle; perimeter: 28 units, area: 48 square units.

29. Quadrant IV; the x-coordinate is positive and the y-coordinate is negative so the point is in Quadrant IV.

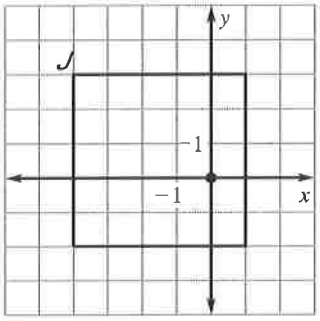
30. Quadrant IV; the x-coordinate is positive and the y-coordinate is negative so the point is in Quadrant IV.

31. Quadrant II; the x-coordinate is negative and the y-coordinate is positive so the point is in Quadrant II.

32. Quadrant III; the x-coordinate is negative and the y-coordinate is negative so the point is in Quadrant III.

33. If the x-coordinate is 0, then the point is on the y-axis. If the y-coordinate is 0, then the point is on the x-axis.

34. *Sample answer:*



Decide on a side length of a square that is greater than 4, like 5, so the other points will be in different quadrants. Add 5 to the x-coordinate of J, -4, to find the point $(1, 3)$ in Quadrant I. Then subtract 5 from the y-coordinate of J to find the point $(-4, -2)$ in Quadrant 3. Then add 5 to the x-coordinate of $(-4, -2)$ and add 5 to the y-coordinate of $(1, 3)$ to find the point $(1, -2)$ in Quadrant IV.

35. For (b, a): Quadrant II; since (a, b) is in Quadrant IV, a must be positive and b must be negative, so the coordinates of (b, a) must be negative and positive. For $(2a, -2b)$: Quadrant I; since (a, b) is in Quadrant IV, a must be positive and b must be negative, so the coordinates of $(2a, -2b)$ must both be positive. For $(-b, -a)$: Quadrant IV; since (a, b) is in Quadrant IV, a must be positive and b must be negative, so the coordinates of $(-b, -a)$ must be positive and negative.

4.1 Problem Solving

36. a. Asia

b. North America

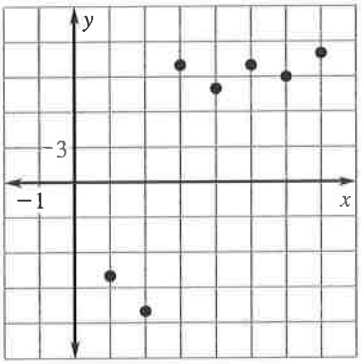
c. Asia

d. South America

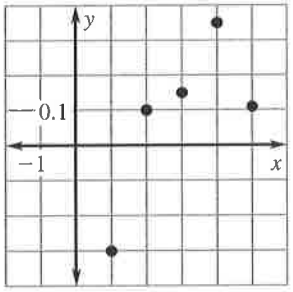
e. North America

f. Europe

37. There is exactly one low temperature for each day in February.

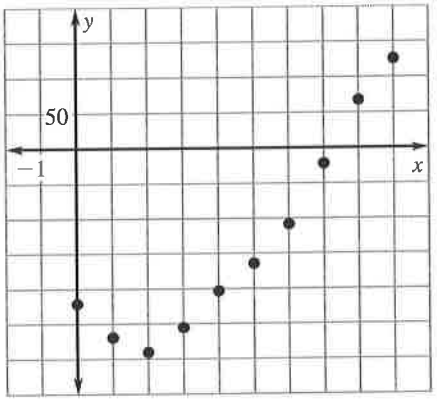


38. a. There is exactly one change in value for each day.



b. *Sample answer:* The change in value increases until day 4, and then decreases.

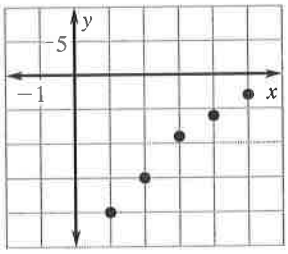
39. a.



b. *Sample answer:* From 1992 to 1999 the federal deficit was decreasing.

40. a. 3, 4, 5
−9, −6, −3

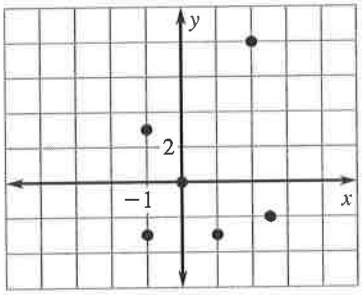
b.



c. *Sample answer:* The diet is lowering the patient's LDL number.

41. a. 2.5, 1, −1, −1, 0
−2, −3, 3, −3, 0

b. (2, 8), (2.5, −2), (1, −3), (−1, 3), (−1, −3), (0, 0)



c. *Sample answer:* A person who reported the same information that was measured.

d. Quadrant IV; the person reported a greater height than was measured and a lesser weight than was measured.

4.1 Mixed Review

42. 76 **43.** 108

44. −7 **45.** 51

46. $6x + 120$ **47.** $3x^2 + 27x$

48. $-4 + 5y$

49. 1.2 h or 1 h 12 min

50. $y = -4x + 6$

51. $y = -\frac{1}{7}x + 2$

52. $y = 6x + 3$

53. function **54.** function

Answers for 4.2

For use with pages 219–221

4.2 Skill Practice

1. linear function

2. No, to be in standard form it should be in the form $Ax + By = C$, so it should be $-6x + y = 4$.

3. solution **4.** solution

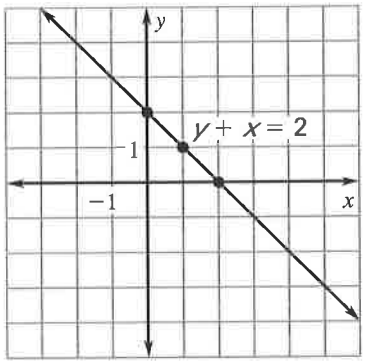
5. solution **6.** not a solution

7. not a solution **8.** not a solution

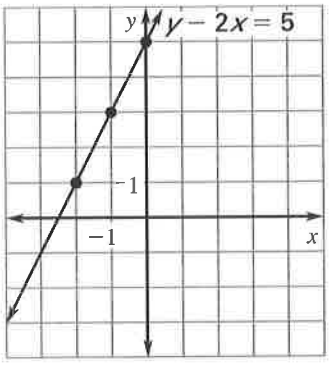
9. The 8 should be substituted for x and 11 for y, $11 - 8 \neq -3$, so (8, 11) is not a solution.

10. B

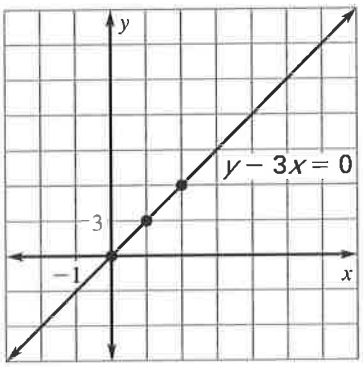
11.



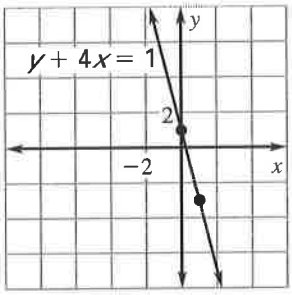
12.



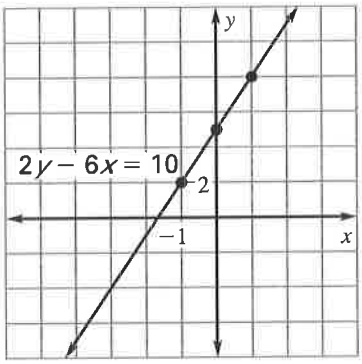
13.



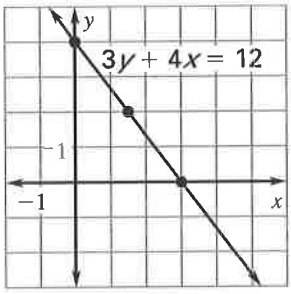
14.



15.



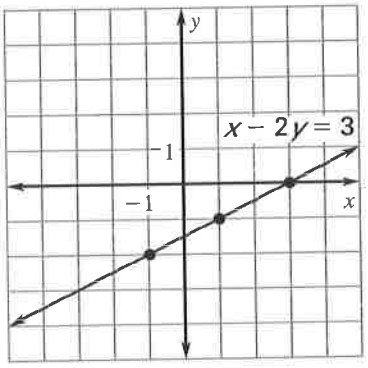
16.



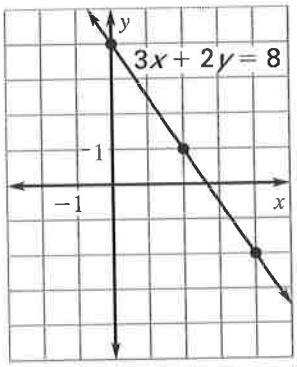
Answers for 4.2 *continued*

For use with pages 219–221

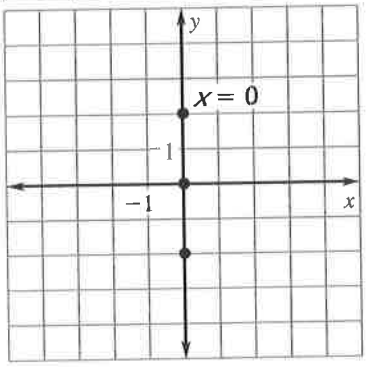
17.



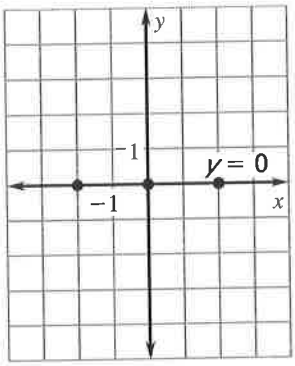
18.



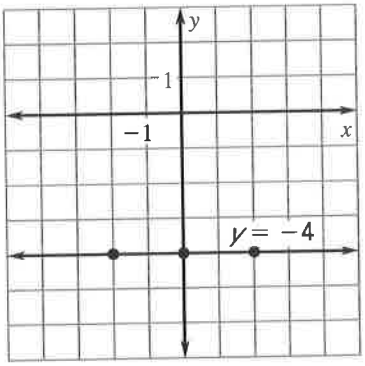
19.



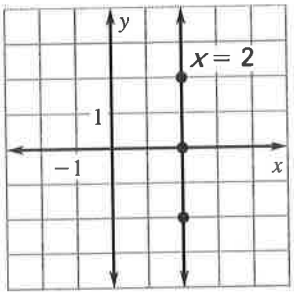
20.



21.



22.

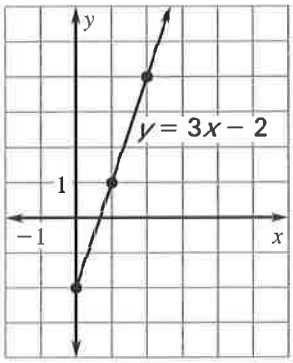


23. C **24.** A **25.** B

Answers for 4.2 *continued*

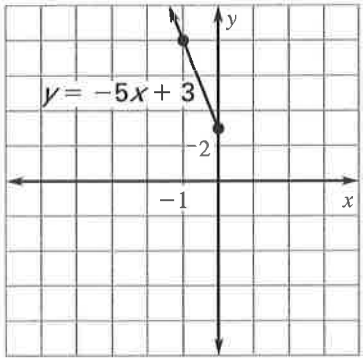
For use with pages 219–221

26.



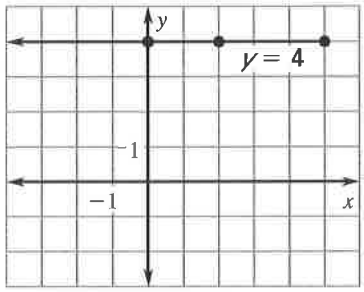
$y \geq -2$

27.



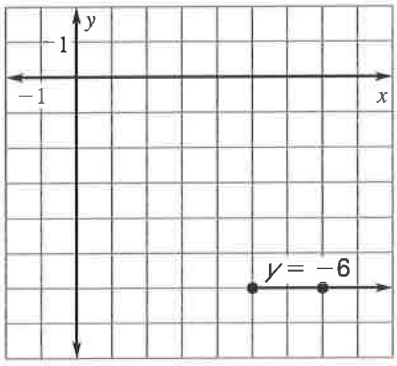
$y \geq 3$

28.



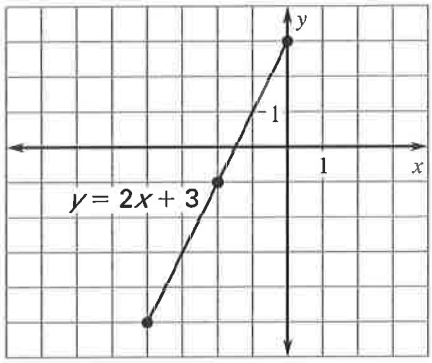
$y = 4$

29.



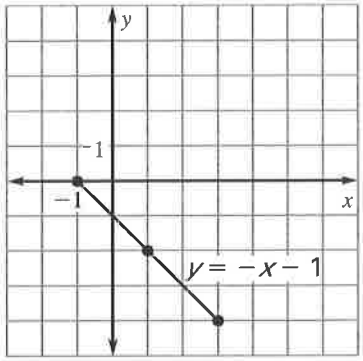
$y = -6$

30.



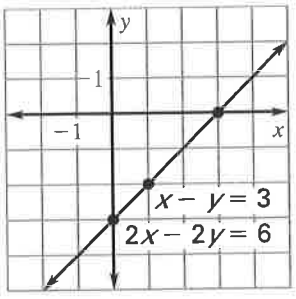
$-5 \leq y \leq 3$

31.



$-4 \leq y \leq 0$

32.

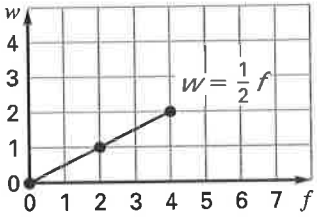


The equations are the same. Each term in the first equation was multiplied by 2 to get the second equation. *Sample answer:* $3x - 3y = 9$

33. D **34.** -1

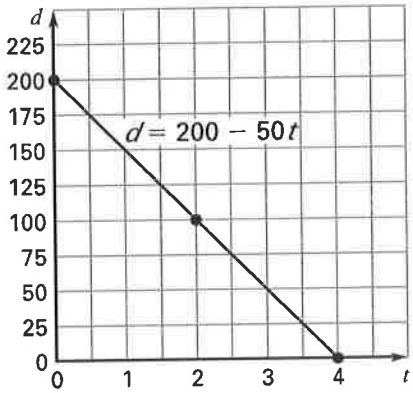
4.2 Problem Solving

35.



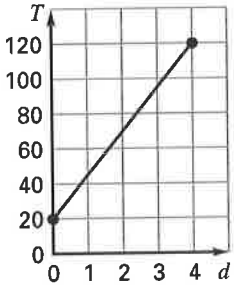
domain: $0 \le f \le 4$,
range: $0 \le w \le 2$; 2 lb

36.



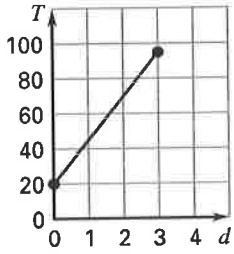
domain: $0 \le t \le 4$,
range: $0 \le d \le 200$; 125 mi

37. a.



domain: $0 \le d \le 4$,
range: $20 \le T \le 120$; 120°C

b.

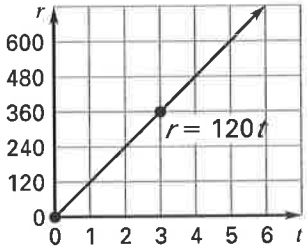


domain: $0 \le d \le 3$,
range: $20 \le T \le 95$; 3 km

38. a. \$190; substitute 3 for f and solve.

b. $13\frac{1}{3}$ yd; substitute 500 for C and solve for f.

39. a.



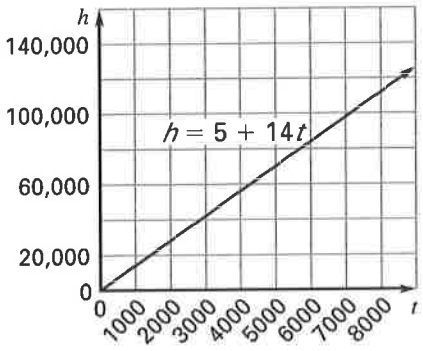
domain: $t \geq 0$,
range: $r \geq 0$

b. domain: $0 \leq t \leq 4$,
range: $0 \leq r \leq 480$;
the graph was a ray, but is now a segment.

40. a.

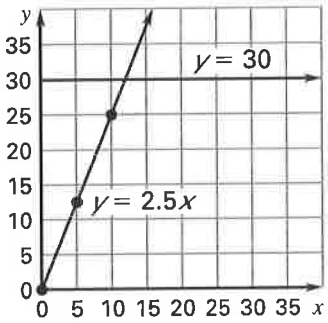
t (seconds)	h (feet)
0	5
1	19
2	33
3	47
4	61
5	75
6	89
7	103
8	117
9	131
10	145

b.



domain: $0 \leq t \leq 7200$,
range: $5 \leq h \leq 100{,}805$

41. a.



b. (12, 30); at 12 days the cost is the same for both payment plans.

c. Monthly; if he pays daily it will cost \$37.50, if he pays monthly it will cost only \$30.

4.2 Mixed Review

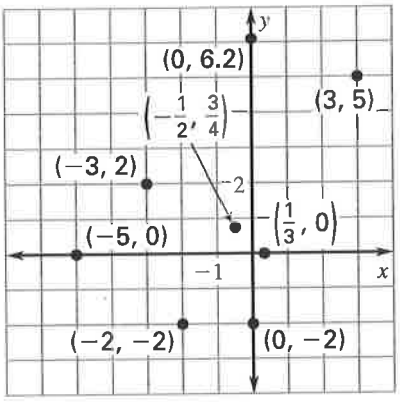
42. 12 **43.** -7.5 **44.** 4

45. -26 **46.** 3.5 **47.** 1

Answers for 4.2 *continued*

For use with pages 219–221

48–55.



48. Quadrant I **49.** Quandrant II

50. *y*-axis **51.** *x*-axis

52. Quadrant III **53.** *x*-axis

54. Quadrant II **55.** *y*-axis

Answers for 4.3

For use with pages 229–233

4.3 Skill Practice

1. x-intercept

2. -4, 3; the x-intercept is when y is 0, so the point $(-4, 0)$ gives the x-intercept. The y-intercept is when x is 0, so the point $(0, 3)$ gives the y-intercept.

3. The intercepts are switched around; the x-intercept is -2, and the y-intercept is 1.

4. 7, -35

5. 3, -3

6. 6, -2

7. 1, 4

8. 5, 10

9. 12, -3

10. 2, 12

11. 64, 4

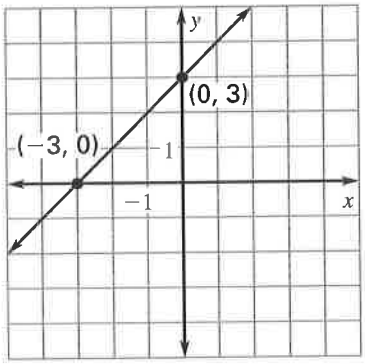
12. -12, 24

13. $\frac{1}{2}$, 7

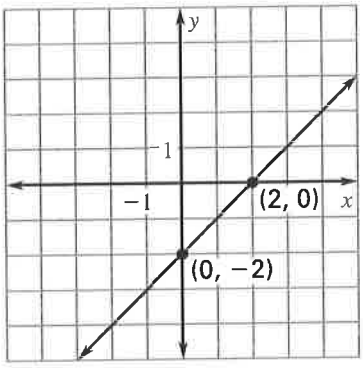
14. 0.25, 1.2

15. 20, -12

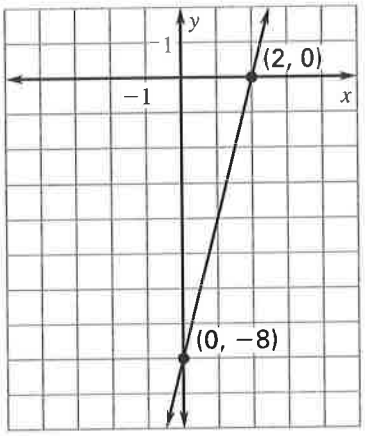
16.



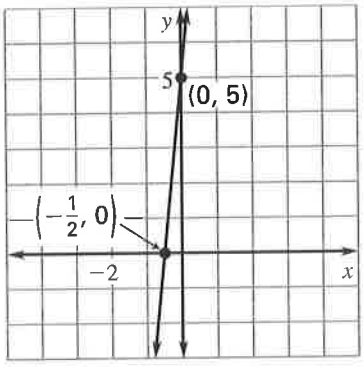
17.



18.



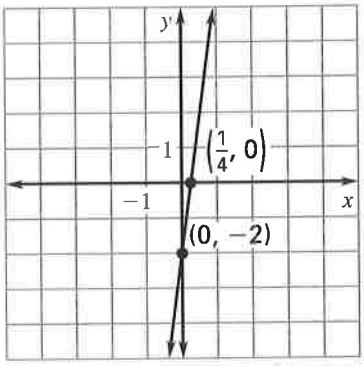
19.



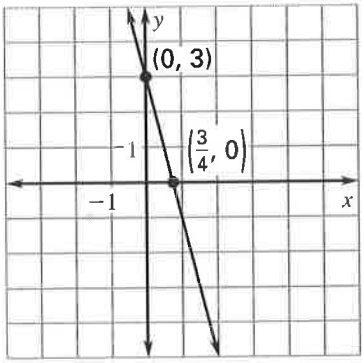
Answers for 4.3 *continued*

For use with pages 229–233

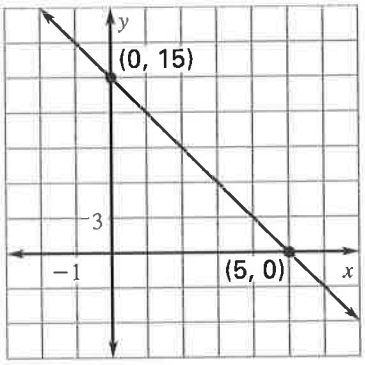
20.



21.



22.



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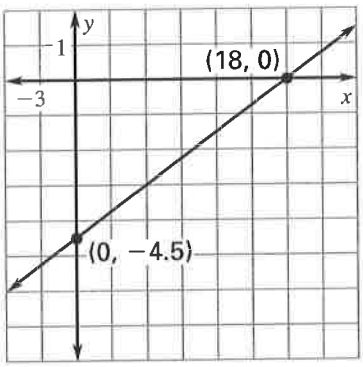

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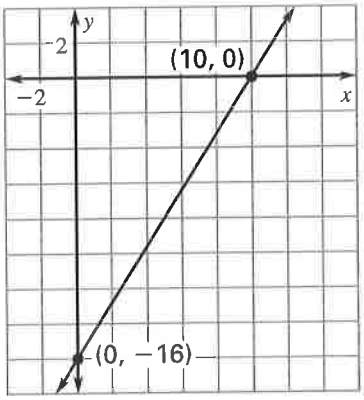

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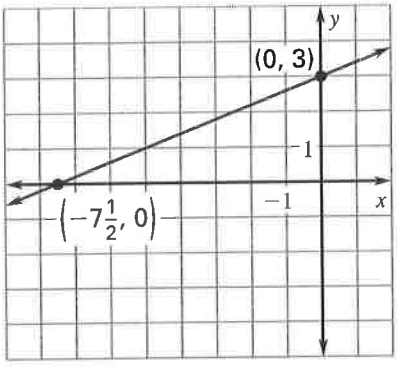
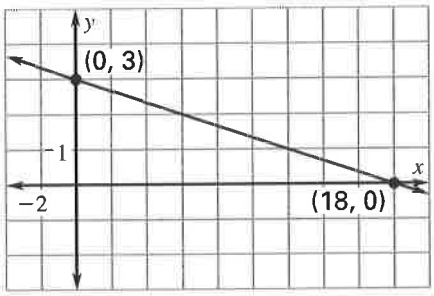


Answers for 4.3 *continued*

For use with pages 229–233

26.



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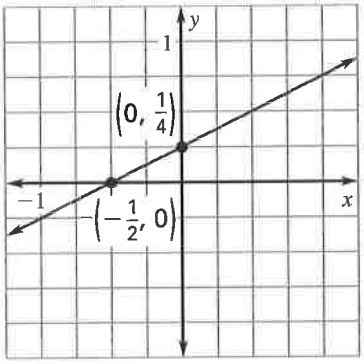
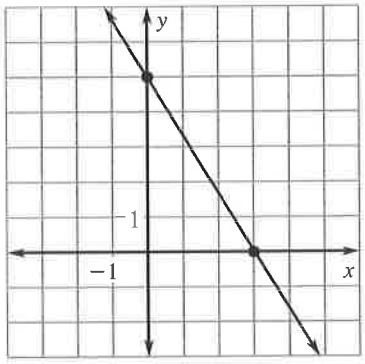


28. 2, 1 **29.** 3, −2 **30.** −4, 3

31.



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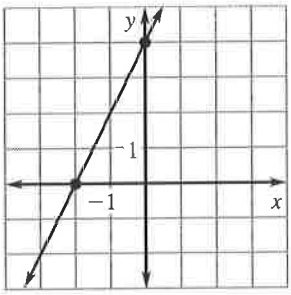

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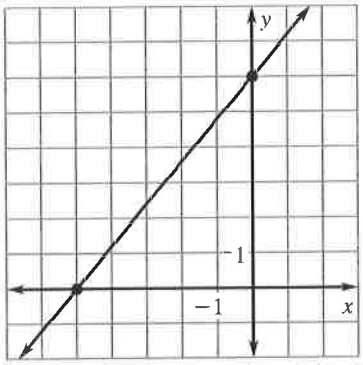

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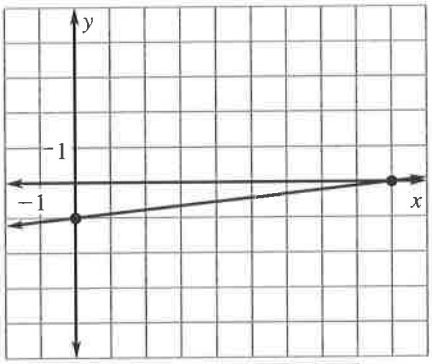

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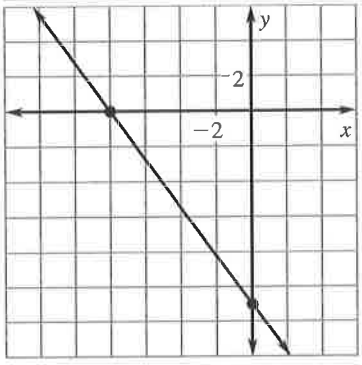
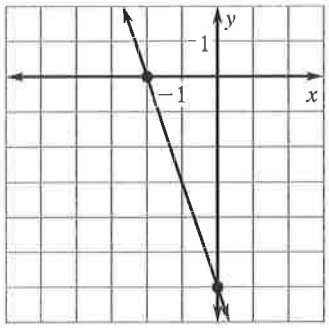


36.



37. D **38.** C

39. B **40.** A

41. Yes; yes; a horizontal line does not have an x-intercept if $y \neq 0$, a vertical line does not have a y-intercept if $x \neq 0$.

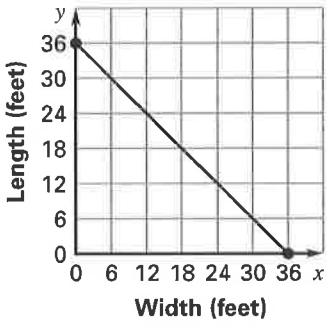
42. *Sample answer:* 15 and 30; k can be any multiple of both 3 and 5.

43. $x = -\frac{b}{a}, y = b$

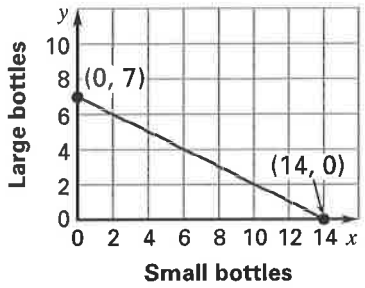
4.3 Problem Solving

44. a. $2x + 2y = 72$

b. 36, 36;

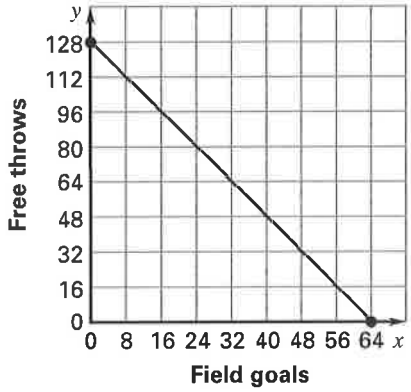


45. a. $x = 14, y = 7$;



b. *Sample answer:* 2 and 6, 4 and 5, 6 and 4

46. a. $x = 64, y = 128$;



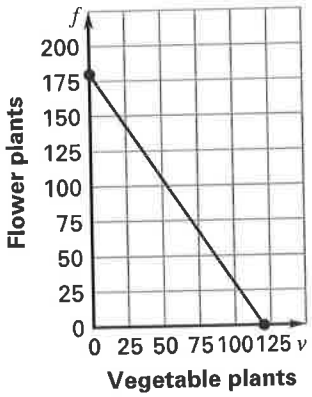
b. The x-intercept means 64 field goals were scored and no free throws were scored. The y-intercept means that no field goals were scored and 128 free throws were scored.

c. *Sample answer:* 40 field goals and 48 free throws, 50 field goals and 28 free throws, 60 field goals and 8 free throws.

46. d. 52 field goals

47. a. v-intercept: 120; f-intercept: 180; the v-intercept means there are no flowers planted, the f-intercept means there are no vegetables planted.

b.



domain: $0 \le v \le 120$,
range: $0 \le f \le 180$

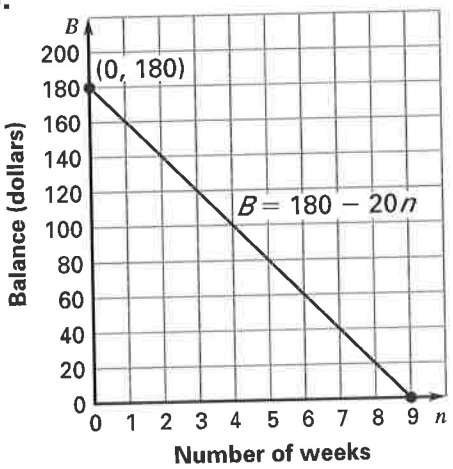
c. 60 ft^2

48. *Sample answer:* 1 h and 76 mi, 2 h and 64 mi, 3 h and 52 mi

49. 12.5 h. *Sample answer*: Since the tank will be empty when it needs to be refilled, replace w in the function with 0 and then solve the resulting equation for t.

50. a. The B-intercept is the balance of the loan after 0 weeks, the n-intercept is the amount of time it takes to pay off the loan.

b.



c. domain: $0 \le n \le 9$,
range: $0 \le B \le 180$; 9 wk

d. The graph is two line segments; 11 payments.

4.3 Mixed Review

51. 16 points

52. game 2

53. 12 more points

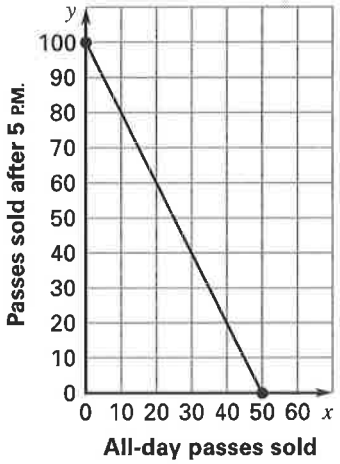
54. 18 **55.** -42 **56.** $-\frac{1}{5}$

4.1–4.3 Mixed Review of Problem Solving

1. a. 50; the number of all-day passes sold when no passes after 5 P.M. were sold.

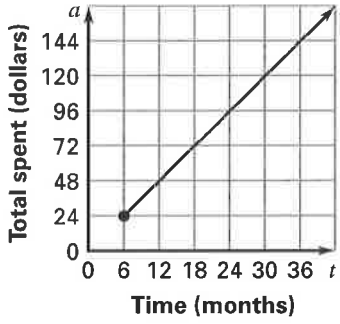
b. 100; the number of passes sold after 5 P.M. when no all-day passes were sold.

c.

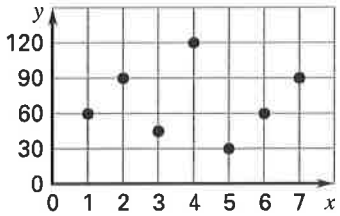


2. a. There is exactly one cost for each time.

b.



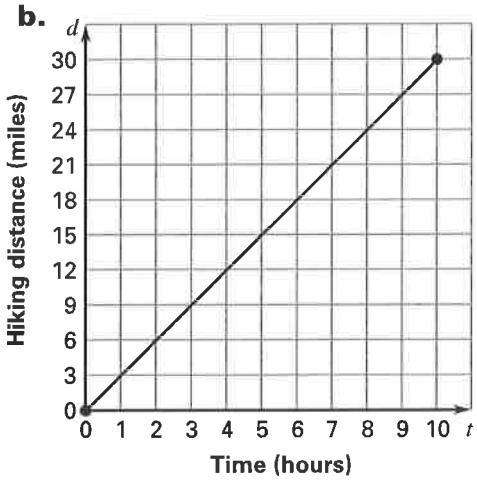
3.



yes; there is exactly one number of minutes for each day.

4. a. Yes; the domain is specified because you plan on hiking for 10 hours.

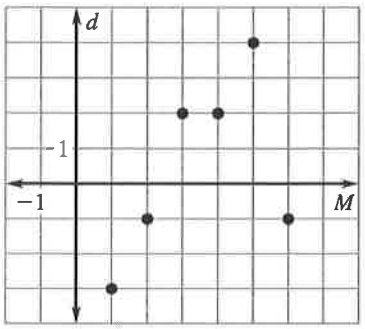
b.



domain: $0 \leq t \leq 10$,
range: $0 \leq d \leq 30$; 2 h

5. a. There is exactly one temperature departure for each month.

5. b.



domain: 1, 2, 3, 4, 5, and 6,
range: −3, −1, 2, and 4

c. The temperature is below normal.

6. 6 T-shirts;